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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,068	01/29/2002	Ubaldo Mastromatteo	854063.670	8416

500 7590 10/29/2003

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EXAMINER

RAO, SHRINIVAS H

ART UNIT PAPER NUMBER

2814

DATE MAILED: 10/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/060,068	Applicant(s) MASTROMATTEO, UBALDO	
	Examiner Steven H. Rao	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-20 and 27-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 13-20 and 27-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of paper submitted under 35 U.S.C. 119(a)-(d), claiming priority from Italian Patent Application No. 2091A000086 filed on January 30, 2001. which papers have been placed of record in the file.

Preliminary Amendment Status

Acknowledgment is made of entry of preliminary amendment / response to restriction requirement filed 9 /12 /2003 .

Therefore claims 13-20 and 27-33 are currently pending in the Application.

Claims 1-12 and 21-26 are cancelled by the amendment.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13,-18, 27-30 rejected under 35 U.S.C. 102(b) as being anticipated by Chao et al. (U.S. Patent .No. 5,633,535 herein after Chao).

With respect to claims 13 and 27 Chao describes a device formed by a first body and a second body welded together through a mechanical and electrical connection structure, comprising:
an electrically conductive region welded between said first body (Chao fig. 5 # 42 conductive region, # 10 –first body) and said second body (fig. 5 # 20 –second body) ;
and a spacing region arranged near said electrically conductive region and surrounding an active region of said electromechanical system. (fig. 5 # 40, col. 4 line 33) .

With respect to claims 14 and 28 describes the device according to claim 13, wherein said electrically conductive region is of a low-melting eutectic material.

With respect to claim 15 describes the device according to claim 14, wherein said low-melting eutectic material is formed by alternating layers of gold and tin.

With respect to claims 16 describes the device according to claim 13, wherein said spacing region is of dielectric material. (Chao col. 4 lines 40 to 65)

With respect to claim 17 describes the device according to claim 16, wherein said dielectric material is chosen from among a spun polymer, such as SUB, polyimide, a composite material formed by laminated polymer layers, such as a photosensitive stick foil, and oxynitrides. (Chao col. 66-67).

With respect to claim 18 describes the device according to claim 13, wherein said spacing region forms a delimiting cavity surrounding said electrically conductive region.
(Chao figure 6, etc.)

With respect to claim 29 describes the device of claim 27 wherein the spacer defines an enclosed space between the first and second bodies, within which is formed the first and second metal regions and the connection structure . (Chao figure 6, etc.).

With respect to claim 30 describes the device of claim 27 wherein the spacer defines an enclosed space between the first and second bodies, within which is formed a micromechanical structure. (Chao figures 4 A and B)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19-20 and 31 are rejected under 35 U.S. C. 103 over Chao et al. (U.S. Patent No. 5,633,535, herein after Chao) as applied to claims 13-18 , etc. above and further in view of Yew et al. (U.S. Patent No. 6,137,164, herein after Yew).

With respect to claim 19, Chao describes the device according to claim 13.

Chao does not specifically describe the device comprising a metal region which extends on top of said second body and beneath said electrically conductive region.

However Yew in figures 5,8 etc. describes metal regions extending on top of second body and beneath the electrically conductive region to form interconnections to perimeter vias for a first and second integrated chip of different sizes and functions and to form self aligned plural bodies during bonding.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Yew's metal regions extending on top of second body and beneath the electrically conductive region in Chao's device to form interconnections to the perimeter vias for a first and second integrated chip of different sizes and functions and to form self aligned plural bodies during bonding. (yew col. 4 lines 8 to 15).

With respect to claim 20 describes the device according to claim 19, wherein said welding region and said metal region are of a material chosen from among titanium, gold and nickel. (well known in the art).

With respect to claim 31 describes the device of claim 27 wherein the first body of semiconductor material is formed of quartz. (well known in the art).

Claims 32-33 are rejected under 35 U.S. C. 103 over Chao et al. (U.S. Patent No. 5,633,535, herein after Chao) and Yew et al. (U.S. Patent No. 6,137,164, herein after Yew) as applied to the claims above and further in view of Duboz et al. (U.S. Patent No. 5,726, 500 herein after Duboz).

With respect to claim 32 Chao and Yew describe the device of claim 31

Chao and Yew do not specifically describe the device further comprising a mirror formed on a second surface of the first body.

However Duboz in col.4 lines 29-32, etc. describes the device further comprising a mirror formed on a second surface of the first body as part of the photo sensitive element of the photodiode when the electronic circuit forma part of an infrared detector, etc.

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Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Duboz's device including the mirror in Chao and Yew's device to form the photo sensitive element of the photodiode when the electronic circuit forma part of an infrared detector, etc. (Duboz col. 4 lines 29-32, col. 5 lines 45-50).

With respect to claim 33 describes the device of claim 31, further comprising a diffractive lens formed on the second surface of the first body. (Duboz col. 5 lines 10-17).


Any inquiry concerning this communication or earlier communication from the examiner should be directed to Steven H. Rao whose telephone number is (703) 306-5945. The examiner can normally be reached on Monday- Friday from approximately 7:00 a.m. to 5:30 p.m.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. The Group facsimile number is (703) 308-7724.

Steven H. Rao

Patent Examiner

October 21, 2003.



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